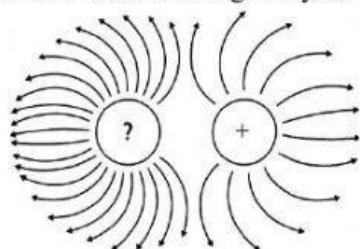


Electric Forces and Fields

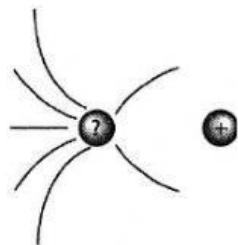
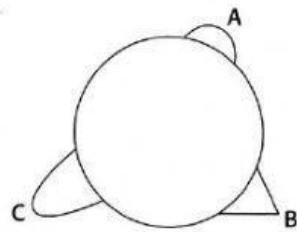
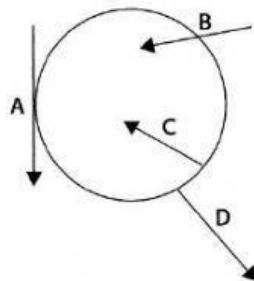
Section Quiz: The Electric Field

Write the letter of the correct answer in the space provided.

1. Which of the following would be the best to use to determine whether an electric field is present around an object?
 - a magnetized pin
 - light from a lamp
 - a charged table tennis ball
 - a mass suspended from a spring scale
2. Which of the following units is used to state the strength of an electric field?
 - coulombs per cubic meter
 - coulombs per newton
 - newtons per coulomb
 - meters per coulomb
3. The strength of an electric field around a charged object depends on both the magnitude of the charge and
 - the magnitude of a test charge.
 - the sign of the object's charge.
 - the distance from the object.
 - the volume of space around the object.
4. The electric fields of two charges, A and B, are represented by diagrams showing electric field lines. If charge B is greater than charge A, the diagram of charge B will have _____ than the diagram of charge A.
 - more lines per unit area
 - longer field lines
 - straighter field lines
 - more curved field lines
5. The diagram on the right shows the electric field lines around two charges that have been brought near each other. From the diagram you can infer that the charge of the left is _____ than the charge on the right.
 - negative and smaller in magnitude
 - negative and larger in magnitude
 - positive and smaller in magnitude
 - positive and larger in magnitude



Electric Forces and Fields *continued*



10. An electric field of 2250 N/C is produced by a charge of $4.82 \times 10^{-11} \text{ C}$. For this field strength, what is the distance to the charge? ($k_c = 8.99 \times 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2$)

SHORT ANSWER

11. Materials, such as glass, in which electric charges do not move freely are called electrical _____.

12. Any force between two objects that are not touching is called a(n) _____ force.

13. The space around a charged object contains an electric _____.

PROBLEM

14. What is the electric force between an electron and a proton that are separated by a distance of 1.0×10^{-10} m? Is the force attractive or repulsive?
($e = 1.60 \times 10^{-19}$ C, $k_C = 8.99 \times 10^9$ N•m²/C²)

15. An electron is separated from a potassium nucleus (charge $19e$) by a distance of 5.2×10^{-10} m. What is the electric force between these particles?
($e = 1.60 \times 10^{-19}$ C, $k_C = 8.99 \times 10^9$ N•m²/C²)

16. Charge A and charge B are 2.2 m apart. Charge A is 1.0 C, and charge B is 2.0 C. Charge C, which is 2.0 C, is located between them and is in electrostatic equilibrium. How far from charge A is charge C?